Remarks

In view of the above amendments and the following remarks, reconsideration of the rejection and further examination are requested.

The specification has been amended so as to make an editorial revision thereto. No new matter has been added by the revision.

Claims 1-25 have been rejected under 35 U.S.C. § 102(e) as being anticipated by Ichihashi (US 6,504,652).

Claims 1, 7, 13 and 19 have been amended so as to further distinguish the present invention from the reference relied upon in the rejection.

Further, claims 1, 3, 6, 7, 9 and 12-25 have been amended to make a number of editorial revisions thereto. These revisions have been made to place the claims in better U.S. form. None of these amendments have been made to narrow the scope of protection of the claims, nor to address issues related to patentability and therefore, these amendments should not be construed as limiting the scope of equivalents of the claimed features offered by the Doctrine of Equivalents.

In light of the amendments to the claims 1, 7, 13 and 19, the above-mentioned rejection is submitted to be inapplicable for the following reasons.

Claim 1 is patentable over the Ichihashi, since claim 1 recites a laser irradiation apparatus including, in part, a first optical unit disposed in an optical path between a light source and a target workpiece to initially receive a coherent beam from the light source, and a second optical unit disposed in an optical path between the first optical unit and the target workpiece to receive the coherent beam from the first optical unit, wherein the first optical unit is disposed such that a starting point of a pointing vector of the coherent beam from the light source and an exit face on the second optical unit are mutually conjugated with respect to the first optical unit. Ichihashi fails to disclose or suggest the positional relationship of the first optical unit as recited in claim 1.

Ichihashi discloses a laser processing apparatus including a laser oscillator 11, a lens system 13, an intensity converting element 14, a phase matching element 15, a variable-magnification projecting optical system 16, a mask 17 and a projecting lens 18. The laser oscillator 11 produces a laser beam 12 that first passes through the lens system 13 where the beam diameter of the laser beam 12 is adjusted. The laser beam 12 then

passes through the intensity converting element 14 where its intensity is changed so as to be uniform. After passing through the intensity converting element 14, the laser beam 12 passes through the phase matching element 15 which adjusts the wave surface of the laser beam 12 to be flat. Next, the laser beam 12 passes through the variable-magnification projecting optical system 16 which projects the image of the laser beam 12 onto the position of the mask 17. The mask 17 restores the uniform intensity distribution of the laser beam 12 prior to the laser beam 12 being projected onto a workpiece 19. Further, Ichihashi discloses that the position of the face matching element 15 and the position of the mask 17 are conjugated with respect to the variable-magnification projecting optical system 16. (See column 2, line 56 - column 3, line 63; column 4, line 67 - column 5, line 6; column 5, lines 13-20; and Figure 1).

In the rejection, it is indicated that the above-described laser processing apparatus of Ichihashi discloses all of the features of claim 1. Regarding this, claim 1 now recites that the first optical unit initially receives the coherent beam from the light source, and that the first optical unit is disposed such that a starting point of a pointing vector of the coherent beam from the light source and an exit face on the second optical unit are mutually conjugated with respect to the first optical unit. Therefore, in order for Ishihashi to disclose or suggest these features of claim 1, it must disclose or suggest that the lens system 13, which initially receives the laser beam 12 from the laser oscillator 11, is disposed such that a starting point of a pointing vector of the laser beam 12 from the laser oscillator 11 and an exit face on the second optical unit are mutually conjugated with respect to the lens system 13. Instead, Ichihashi discloses that the position of the phase matching element 15 and the position of the mask 17 are conjugated with respect to the variable-magnification projecting optical system 16. It is clear that Ishihashi does not disclose or suggest that the positioning of lens system 13 is in any way related to the conjugation of the position of the phase matching element 15 and the position of the mask 17. As a result, it is apparent that Ichihashi fails to disclose or suggest the claimed positional relationship of the first optical unit, and claim 1 is patentable over Ichihashi.

As for claim 13, it is patentable over Ichihashi for reasons similar to those set forth above in support of claim 1. That is, claim 13 recites, in part, adjusting a coherent beam using a first optical unit and a second optical unit, the first optical unit being

disposed in an optical path between a light source and a target workpiece to initially receive the coherent beam from the light source, wherein the first optical unit is disposed such that a starting point of a pointing vector of the coherent beam from the light source in an exit face on a second optical unit are mutually conjugated with respect to the first optical unit, which feature is not disclosed or suggested by Ichihashi.

Claim 7 is patentable over Ichihashi, since claim 7 recites a laser irradiation apparatus including, in part, a first optical unit disposed in an optical path between a light source and a target workpiece to initially receive a coherent beam from the light source, wherein the first optical unit focuses the coherent beam between the first optical unit and a second optical unit, and a focal point of the second optical unit and an exit face on the third optical unit are mutually conjugated with respect to the second optical unit. Ichihashi fails to disclose or suggest this feature of claim 7.

As discussed above, Ichihashi discloses that the laser processing apparatus has the phase matching element 15, the variable-magnification projecting optical system 16 and the mask 17. Further, Ichihashi discloses that the position of the phase matching element 15 and the position of the mask 17 are conjugated with respect to the variable-magnification projecting optical system 16. (See column 3, lines 60-63 and Figure 1). However, claim 7 recites that the focal point of the second optical unit and the exit face on the third optical unit are mutually conjugated with respect to the second optical unit. This differs from the laser processing apparatus of Ichihashi, since the conjugation of the position of the phase matching element 15 and the position of the mask 17 is with respect to the variable-magnification projecting optical system 16 and not the phase matching element 15. As result, it is apparent that Ichihashi fails to disclose or suggest this feature of claim 7.

As for claim 19, it is patentable over Ichihashi for reasons similar to those set forth above in support of claim 7. That is, claim 19 recites, in part, adjusting a coherent beam using a first optical unit, a second optical unit, and a third optical unit, the first optical unit being disposed in an optical path between a light source and a target workpiece to initially receive the coherent beam from the light source, wherein the adjusting of the coherent beam includes focusing the coherent beam between the first optical unit and the second optical unit using the first optical unit, and wherein a focal

point of the second optical unit and an exit face on the third optical unit are mutually conjugated with respect to the second optical unit, which feature is not disclosed or suggested in the reference.

Because of the above-mentioned distinctions, it is believed clear that claims 1-25 are not anticipated by Ichihashi. Furthermore, it is submitted that the distinctions are such that a person having ordinary skill in the art at the time of invention would not have been motivated to modify Ichihashi or to make any combination of the references of record in such a manner as to result in, or otherwise render obvious, the present invention as recited in claims 1-25. Therefore, it is submitted that claims 1-25 are clearly allowable over the prior art of record.

In view of the above amendments and remarks, it is submitted that the present application is now in condition for allowance. The Examiner is invited to contact the undersigned by telephone if it is felt that there are issues remaining which must be resolved before allowance of the application.

Respectfully submitted,

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